HAZARDOUS MATERIALS OPERATIONS
EQUIVALENCY CHECKLIST
5/6/98

_____ 23-1.1 Identify the different classifications of hazardous materials.

_____ 23-1.2 Identify the five areas of hazardous waste site operations addressed in Title I of the Superfund Amendments and Reauthorization Act of 1986 (SARA).

_____ 23-1.3 Identify the major requirements of the Occupational Safety and Health Administration (OSHA) Standards 29 CFR part 1910.120 as it applies to emergency response personnel. Identify the major requirements of SARA Title III, "Emergency Planning and Right to Know Act."

_____ 23-1.4 Identify the applicability of the OSHA 29 CFR 1910.120 and EPA 40 CFR 311 Regulations to the First Responder Operations Level responder. (NFPA 472: 3-1.1)

_____ 23-1.5 Identify the fundamental requirements placed on emergency responders by 29 CFR 1910.120. (NFPA 472: 3-1.1)

_____ 23-1.6 Recognize the Illinois Department of Labor has adopted 29 CFR 1910.120 and has enforcement power in their jurisdiction. (NFPA 472: 3-1.1)

_____ 23-1.7 Identify the role of the Illinois Department of Labor in enforcement of 29 CFR 1910.120 provisions. (NFPA 472: 3-1.1)

_____ 23-1.8 Identify the role of the First Responder Operations Level as defined in NFPA 472. (NFPA 472: 3-1.2)

_____ 23-1.9 Identify the State Emergency Response Commission (SERC) in Illinois.

_____ 23-1.10 Identify the responsibilities of the Local Emergency Response Commission (LEPC) in hazardous materials response.

_____ 23-1.11 Identify requirements placed on facility owners/operators covered by SARA Title III.

_____ 23-1.12 Identify the roles of the Hazardous Materials First Responder Awareness Level, Hazardous Materials Technician, and Incident Commander as defined in NFPA 472.

_____ 23-1.13 Identify the scope of NFPA Standards 471, 472, and 473. (NFPA 472: 3-1.2)

_____ 23-2.1 Identify the four aspects of response organization.

_____ 23-2.2 Identify the components of a model standard operating guideline.

_____ 23-2.3 Identify the five response elements interacting at a hazardous materials incident.

_____ 23-3.1 Identify the significance of and the impact on the behavior of the container and/or its contents of the following chemical and physical properties: (NFPA 472: 3-2.3.1.1)

_____ a. corrosivity
_____ b. flammable range
_____ c. flash point
_____ d. form (solid, liquid or gas)
_____ e. ignition temperature
_____ f. reactivity

_____ g. specific gravity
_____ h. toxic products of combustion
_____ i. vapor density
_____ j. water solubility

_____ 23-3.2 Identify the toxicity terms as they relate to emergency response personnel:

_____ a. LD_{50}
_____ b. LC_{50}
_____ c. TLV-TWA
_____ d. TLV-STEL
_____ e. TLV-CT
_____ f. IDLH
_____ g. PEL

_____ 23-3.3 Identify the differences between the following terms: (NFPA 472: 3-2.3.1.2)

_____ a. Exposure and Hazard
_____ b. Exposure and Contamination
_____ c. Contamination and Secondary Contamination

_____ 23-3.4 Identify the health and physical hazards that may cause harm. NFPA 472: 3-2.3.6)

_____ 23-3.5 Identify the health hazards associated with the following terms: (NFPA 472: 3-2.3.7)

_____ a. Asphyxiant
_____ b. Irritant
_____ c. Sensitizer
_____ d. Chronic health hazard

_____ 23-3.6 Identify the terms related to radioactive materials and describe their significance in predicting health hazards.

_____ 23-3.7 Identify the differences between acute and chronic exposures to a hazardous material.

_____ 23-3.8 Identify four factors which affect the toxicity of a chemical agent.

_____ 23-4.1 Identify the six recognition clues as presented in class.

_____ 23-4.2 Identify how occupancy and location can assist in determining the presence of hazardous materials.

_____ 23-4.3 Given examples of various hazardous materials containers, identify the general shapes of containers for liquid, gas and solid. (NFPA 472: 3-2.1.1)

_____ 23-4.4 Given examples of non-pressure type and pressure type facility tanks, correctly identify each tank by type. (NFPA 472: 3-2.1.1.4)

_____ 23-4.5 Given examples of facility containers, identify the markings indicating container size, product contained, and/or the site identification numbers. (NFPA 472: 3-2.1.2.2)

_____ 23-4.6 Given examples of the following cargo tanks, identify each by type: (NFPA 472: 3-2.1.1.3)

_____ a. MC-306/DOT 406
_____ b. MC-307/DOT 407
_____ c. MC-312/DOT 412
_____ d. MC-331
_____ e. MC-338
_____ f. Dry bulk cargo tanks

_____ 23-4.7 Given examples of pressure intermodal containers and non-pressure intermodal tanks, identify each as such. (NFPA 472: 3-2.1.1.2)

_____ 23-4.8 Given examples of the following tank cars, identify each by type: (NFPA 472: 3-2.1.1.1)

_____ a. non-pressure tank cars with or with out the expansion dome.
_____ b. pressure tank cars
_____ c. cryogenic tank cars

_____ 23-4.9 Identify product, owner and emergency telephone numbers on a pipeline marker. (NFPA 472: 3-2.1.3.1)

_____ 23-4.10 Identify the U.S. DOT placards and labels utilized in transportation of hazardous materials. (NFPA 472: 3-2.1.2 & 3-2.2.2.1)

_____ 23-4.11 Identify facility and transportation markings and colors that indicate hazardous materials, including: (NFPA 472: 3-2.1.1.2)

_____ a. UN/NA ID Numbers
_____ b. NFPA 704 Markings
_____ c. Military hazardous materials markings

_____ 23-4.12 Given the following transportation vehicles and their shipping papers, identify the vehicle or tank marking in all applicable locations: (NFPA 472: 3-2.1.2 .1)

_____ a. rail transport vehicles including tank cars
_____ b. intermodal equipment including IM tanks
_____ c. highway vehicles, including cargo tanks

_____ 23-4.13 Given a pesticide label, identify each of the following pieces of information; then match this information with its significance in surveying the hazardous materials incident: (NFPA 472: 3-2.1.3.2)

_____ a. name of product
_____ b. signal word
_____ c. pest control product number
_____ d. precautionary statement
_____ e. hazard statement
_____ f. active ingredient

_____ 23-4.14 Identify the surrounding conditions that should be noted when surveying the incident scene.NFPA 472: 3-2.1.4)

_____ 23-4.15 Identify ways to verify information obtained from the survey of hazardous materials incidents. (NFPA 472: 3-2.1.5)

_____ 23-4.16 Identify two ways in which MSDS may be obtained in an emergency.(NFPA 472: 3-2.2.2)

_____ 23-4.17 Using an MSDS for a specified material, identify the following hazardous materials and response information: (NFPA 472: 3-2.2.3)

_____ a. physical and chemical characteristics
_____ b. physical hazards of the material
_____ c. health hazards of the material
_____ d. signs and symptoms of exposure
_____ e. routes of entry
_____ f. PELs
_____ g. responsible party contact
_____ h. precautions for handling
_____ i. applicable control measures
_____ j. emergency and first aid procedures
_____ k. manufacturer's emergency phone number.

_____ 23-5.1 Identify the two major types of fixed facilities.

_____ 23-5.2 Identify three types of storage found in fixed facilities.

_____ 23-5.3 Identify two fixed facility systems.

_____ 23-5.4 Given the types of fixed site emergencies, identify the hazards associated with each:

_____ a. structural fire
_____ b. process equipment fire
_____ d. hazardous materials incident
_____ e. confined space rescue

_____ 23-5.5 Identify warning signs which may indicate a possible hazardous condition at a fixed site.

_____ 23-6.1 Identify a resource for determining the size of an endangered area of a hazardous materials incident. (NFPA 472: 3-2.4.1)

_____ 23-6.2 Identify various resource manuals available for use in the field at hazardous materials incidents.

_____ 23-6.3 Identify various sources of technical assistance for use in the field at hazardous materials incidents.

_____ 23-6.4 Identify various other sources of information for use in the field at hazardous materials incidents.

_____ 23-6.5 Identify the following in relation to CHEMTREC/CANUTEC: (NFPA 472: 3-2.2.4)

_____ a. type of assistance provided
_____ b. how to contact them
_____ c. information to be furnished to CHEMTREC

_____ 23-6.6 Identify two methods of contacting the manufacturer or shipper to obtain hazard and response information. (NFPA 472: 3-2.2.5)

_____ 23-7.1 Identify the resources available for determining the concentrations of a released hazardous material within an endangered area. (NFPA 472: 3-2.4.3)

_____ 23-7.2 Differentiate between sampling and monitoring.

_____ 23-7.3 Identify the regulation requiring site characterization and air monitoring.

_____ 23-7.4 Identify the three stages of monitoring.

_____ 23-7.5 Identify the following terms and their importance in monitor performance:

_____ a. sensitivity
_____ b. selectivity
_____ c. response time
_____ d. calibration
_____ e. relative response

_____ 23-7.6 Identify the terms associated with electrical safety of monitoring devices.

_____ 23-8.1 Identify the three categories of personal protection.

_____ 23-8.2 Identify the difference between limited use and reusable protective clothing.

_____ 23-8.3 Identify three measures of chemical resistance used in relation to chemically protective clothing.

_____ 23-8.4 Identify two factors used in the evaluation of the appropriateness of chemical protective clothing.

_____ 23-8.5 Identify the regulatory requirements for respiratory protective equipment.

_____ 23-8.6 Identify three types of respiratory protection and the advantages and limitations of each for use at a hazardous materials scene. (NFPA 472: 3-3.3.1.1)

_____ 23-8.7 Identify the required physical capabilities and limitations of working in SCBA. (NFPA 472: 3-3.3.1.2)

_____ 23-8.8 Identify skin contact hazards encountered at hazardous materials incidents. (NFPA 472: 3-3.3.2.1)

_____ 23-8.9 Identify the purpose, advantages and limitations of the following levels of protective clothing at hazardous materials incidents: (NFPA 472: 3-3.3.2.2)

_____ a. structural fire fighting clothing.
_____ b. high temperature protective clothing.
_____ c. chemically protective splash protective clothing.
_____ d. chemically protective vapor protective clothing.

_____ 23-8.10 Identify the four EPA levels of protective ensembles.

_____ 23-8.11 Identify construction materials of chemically protective clothing.

_____ 23-8.12 Identify appropriate personal protective equipment given an defensive response option.

_____ 23-8.13 Identify that there are no universally inert chemically protective materials and that there

are some chemicals from which responders may not be able to protect themselves.

_____ 23-8.14 Identify the importance of the buddy system and backup personnel in implementing a planned defensive response option. (NFPA 472: 3-4.3.1 & 3-4.3.2)

_____ 23-8.15 Identify safe work practices to be observed when approaching and working at hazardous materials incidents. (NFPA 472: 3-4.3.3)

_____ 23-8.16 Identify the symptoms of heat and cold stress. (NFPA 472: 3-4.3.4)

_____ 23-8.17 Identify the physical capabilities and limitations of personnel working in personal protective equipment. (NFPA 472: 3-4.3.5)

_____ 23-8.18 Match the function of the operational components of the positive pressure SCBA with the name of the component. (NFPA 472: 3-4.3.6)

_____ 23-8.19 Identify the procedures for cleaning, sanitizing, and inspecting respiratory equipment. (NFPA 472: 3-4.3.7)

_____ 23-8.20 Identify the procedures for donning, doffing, and working in positive pressure SCBA (NFPA 472: 3-4.3.8)

_____ 23-9.1 Identify the factors for determining the extent of physical, health, and safety hazards which exist in the endangered area of a hazardous materials incident given the concentrations of the released material. (NFPA 472: 3-2.4.4)

_____ 23-9.2 Identify three types of stress that could cause a container to release its contents. (NFPA 472: 3-2.3.2)

_____ 23-9.3 Identify five ways in which containers can breach. (NFPA 472: 3-2.3.3)

_____ 23-9.4 Identify four ways in which containers can release contents. (NFPA 472: 3-2.3.4)

_____ 23-9.5 Identify four dispersion patterns that can be created upon release (NFPA 472: 3-2.3.5)

_____ 23-9.6 Identify three general time frames for predicting the length of time that exposures may be in contact with hazardous materials in an endangered area. (NFPA 472: 3-2.3.6)

_____ 23-9.7 Identify the steps for determining the number of exposures that could be saved by the first responder with the resources provided and operating in a defensive fashion, provided the exposures already lost and an incident analysis.

_____ 23-9.8 Describe the circumstances in which it would be prudent to pull back from a hazardous materials incident. (NFPA 472: 3-5.1.2)

_____ 23-9.9 Identify the methods for communicating the status of the planned response to the incident commander through the normal chain of command. (NFPA: 3-5.2.1)

_____ 23-9.10 Identify the methods for immediate notification if the incident commander and other response personnel about the critical conditions at the incident. (NFPA 472: 3-5.2.2)

_____ 23-10.1 Describe the steps for determining the defensive response objectives given an analysis of a hazardous materials incident. (NFPA 472: 3-3.1.2)

_____ 23-10.2 Identify the defensive options to accomplish a given response objective. (NFPA 472: 3-3.2.1)

_____ 23-10.3 Identify the purpose, procedures, equipment, and safety precautions used with each of the following: (NFPA 472: 3-3.2.2)

_____ a. Absorption
_____ b. Dike, dam, diversion, retention
_____ c. Dilution
_____ d. Vapor dispersion
_____ e. Vapor suppression

_____ 23-10.4 Identify the differences between containment and confinement.

_____ 23-10.5 Identify the characteristics and applicability of the following foams: (NFPA 472 3-4.4.1.1)

_____ a. Protein
_____ b. Fluoroprotein
_____ c. Polar solvent alcohol-resistant concentrates
_____ d. Hazardous materials concentrates
_____ e. Aqueous film-forming foam (AFFF)
_____ f. High expansion

_____ 23-10.6 Identify problems encountered with the use of foam.

_____ 23-10.7 Identify considerations regarding the application of foam.

_____ 23-10.8 Identify the location and the use of the emergency shutoff devices found on MC-306 and MC-331 cargo tanks. (NFPA 3-4.4.3)

_____ 23-11.1 Identify the procedures for establishing control of the scene through the use of control zones. (NFPA 472: 3-4.1.1)

_____ 23-11.2 Identify the criteria for the determination of the location of control zones at hazardous materials incidents. (NFPA 472: 3-4.1.1.1)

_____ 23-11.3 Identify the basic techniques at hazardous materials incidents for the following protective actions: (NFPA 472: 3-4.1.2)

_____ a. Evacuation.
_____ b. In-place protection.

_____ 23-11.4 Identify considerations for locating emergency decontamination. (NFPA 472: 3-4.1.3)

_____ 23-11.5 Identify items to be considered in a safety briefing before personnel are allowed to work at a hazardous materials incident.

_____ 23-11.6 Identify the reasons for emergency decontamination at hazardous materials incidents. (NFPA 472: 3-3.4.3)

_____ 23-11.7 Identify ways that personnel, apparatus, tools, equipment, and personal protective equipment can become contaminated. (NFPA 472: 3-3.4.1)

_____ 23-11.8 Identify how the need for emergency decontamination procedures is determined by the potential for secondary contamination. (NFPA 472: 3-3.4.2)

_____ 23-11.9 Identify site decontamination plan characteristics.

_____ 23-11.10 Identify advantages and limitations of emergency decontamination. (NFPA 472: 3-3.4.4)

_____ 23-11.11 Identify the recommended decontamination procedures as outlined by the USEPA.

_____ 23-12.1 Identify the role of the Operations level First Responder during a hazardous materials incident according to the local emergency response plan and the standard operating procedures of the organization. (NFPA 472: 3-4.2.1)

_____ 23-12.2 Identify the law requiring the Incident Command System to be in use at a hazardous materials incident. (NFPA 472: 3-4.2.3)

_____ 23-12.3 Identify hazardous materials incident levels as defined by the local emergency response plan. (NFPA 472: 3-4.2.2)

_____ 23-12.4 Identify the purpose and three benefits of using the Incident Command System. (NFPA 472: 3-4.2.3)

_____ 23-12.5 Identify command staff and functional unit positions used in the Incident Command System. (NFPA 472: 3-4.2.3)

_____ 23-12.6 Identify the considerations for the determination of the command post location for hazardous materials incidents. (NFPA 472: 3-4.2.4)

_____ 23-12.7 Identify the procedures for requesting additional resources during a hazardous materials incident. (NFPA 472: 3-4.2.5)

_____ 23-12.8 Identify the safety officer's responsibilities. (NFPA 472: 3-4.2.6)

_____ 23-13.1 Describe the information for incident activities that is relayed through the chain of command to the incident commander.

_____ 23-13.2 Describe the required activities for termination of a hazardous materials incident.

_____ 23-13.3 Describe the process of conducting an incident critique.

_____ 23-13.4 Describe the process for revision of operating procedures and response capabilities as a result of lessons learned from the incident.